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ft.; *Quercus alba* at Atwood, Indiana, 21 ft.; *Juglans nigra* at Hanover Neck, New Jersey, 24 ft.; and *Liriodendron Tulipifera* at Asheville, North Carolina, 34.5 ft.

The report of the results of the contest also contains other interesting data, while the value of such a competition, as pointed out by LAMB,[24] consists not only in promoting interest in the protection of tree individuals and in the conservation and preservation of forests, but also in affording data for the solution of problems of distribution, of growth, and of duration. In this connection he has prepared maps showing the distribution of 6 of the important species represented and the location of the best specimens reported in the contest. It is hoped that public interest in the subject will not cease with the conclusion of the contest.—GEO. D. FULLER.

American forestry.—Recent changes and improvements have made the magazine known as *American Forestry* valuable not only to the forester but also to the botanical teacher or student interested in trees. An excellent feature is that of devoting special attention to one particular tree species in each issue. Well written articles are given dealing with the identification, characteristics, and habits of the trees, and also with the lumber and its uses. During the first half of the current year the following species have been the subjects of special consideration: *Quercus alba*, *Pseudotsuga Douglasii*, *Thuja plicata*, *Betula papyrifera*, *Ulmus americana*, and *Sequoia sempervirens*. The excellence of the illustrations in these articles is worthy of note.

There are also, in addition to the articles of more particular interest to the professional forester, others upon more general but quite as timely topics. Among these we may note as examples a finely illustrated article upon *Cupressus macrocarpa* under the title of "The tree of legend and romance," in the February issue; and several dealing with forests in time of war, showing some of the devastating effects of the present European conflict. A recognition of various phases of forest and country life is seen in regular departments devoted to children, birds, ornamental and shade trees, and to wood preserving, while quite as important are the very extensive lists of current literature. Finally, as an indication of the international scope of its interests is a page of its notes and news items devoted to Canadian forestry and foresters.—GEO. D. FULLER.

A vegetational map of the United States.—SHREVE[25] has compiled a map of the range of the principal types of vegetation in the United States, basing the boundaries of the various subdivisions upon purely vegetational criteria. The primary classes of vegetation are the well recognized ones of desert, grassland, and forest. Of these the first and last have been subdivided, but the data available for the grassland are not regarded as sufficient to afford a basis for mapping. On the whole, 18 types of plant communities are recognized, briefly characterized, and plotted. An inspection shows, as its author points out, that the areas have in general a north and south rather than an east and west trend, which tends to show that the major differences in vegetation are here determined more largely by conditions of moisture than of temperature.

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[24] LAMB, W. H., Value of the contest. Jour. Heredity 6:424–429. 1915.

[25] SHREVE, F., A map of the vegetation of the United States. Geog. Rev. 3:119–125. 1917.

While the result is decidedly the best map of the sort yet produced, it is also probable that it would be difficult to find an ecologist who would agree with it in every particular. So much of the disagreement would be differences of opinion as to what should be included within a single vegetational type, that diverse criticism would be neither a gracious nor a practical task, and yet the reviewer cannot refrain from expressing a question as to the fitness of including both the *Pinus ponderosa* and *P. Murrayana* forests of the west and the *P. Strobus*, *Tsuga*, and *Abies balsamea* forests of the east in the "northern mesophytic evergreen forest."—GEO. D. FULLER.

History of forest ecology.—A recent study of the historical development of forest ecology is likely to prove of equal interest to foresters and ecologists. In it BOERKER[26] traces the development of plant ecology from its beginnings to the modern phase characterized chiefly by efforts to measure the various habitat factors. The beginnings of forest ecology are seen in the empirical development of silviculture, dating back to the fifteenth century or even earlier; but the founder of the science is considered to be DUHAMEL DU MONCEAU, about the middle of the eighteenth century. About a century later the work of HARTIG and that of a committee of 5 German foresters, appointed in 1868, consisting of WESSELY, HEYER, EBERMAYER, JUDEICH, and BAUR, gave the science further impetus, and resulted in the organization of a series of forest experiment stations throughout Germany. From this beginning the advancement of the science is traced to the present day, as shown in the work of WAGNER, MEYER, and DUESBERG in Germany, and that of FERNOW and ZON in America. It is notable that not until 1909 were forest experiment stations established in the United States.—GEO. D. FULLER.

Permeability.—It is well established that a great variety of stimuli (light, temperature, salts, anesthetics) modify the permeability of protoplasm. In some cases the stimulus decreases the permeability at low intensity and increases it at high intensity. KOKETSU[27] believes he has demonstrated that electrical stimulation increases the permeability of epithelial cells of *Tradescantia discolor*. Cells thus stimulated are less easily plasmolyzed by ordinary plasmolytic agents than are unstimulated cells. After recovery from the stimulus they show a greater degree to plasmolysis by the same concentration of the

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[26] BOERKER, R. H., A historical study of forest ecology; its development in the fields of botany and foresty. Forestry Quarterly **14**:380–432. 1916.

[27] KOKETSU, R., Über den Einfluss der elektrischen Reizung auf die Permeabilität der Pflanzenzellern. Bot. Mag. Tokyo **30**:264–266. 1916.